**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |

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| University of Baghdad | 1. Teaching Institution |
| College of Engineering / Energy Engineering | 2. University Department/Centre |
| 104ENPP | 3. Course title/code |
| BSc. | 4. Programme(s) to which it contributes |
| weekly | 5. Modes of Attendance offered |
| year | 6. Semester/Year |
| 60 hour | 7. Number of hours tuition (total) |
| 15/05/2016 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| 1- Cognitive development of students by recognizing the MATLABs of tware environment. | |
| 2- Engineering skills development for students to learn how to deal with matrices. | |
| 3- Recognize the important programs and functions in MATLAB program through various engineering applications. | |
| 4- Dealing with drawing function sbi-dimensional and three-dimension although the identification of the suggestions drawing. | |
| 5- Learn how to use programming and conditional sentences to build the program(code) by MATLAB language. | |
| 6- Dealing with polynomial functions and how to use them and drawn and their derivations. | |
| 7- Solving of engineering practical examples for various engineering fields. | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Methods |
| 1. Knowledge and Understanding   A1. The student learns the basic MATLAB commands and the environment.  A2. That recognizes the student on how to deal with(Vector matrices) and how to configure the program in MATLAB language.  A3. The student learn show to solve the problems of Applied Engineering.  A4.  A5.  A6. |
| B. Subject-specific skills  B1.Solve fundamental problems of engineering.  B2. Using MATLAB program to solve problems of Applied Engineering.  B3. |
| Teaching and Learning Methods |
| The method of lecturing.  Team Project.  Laboratory learning.  Application of engineering problems.  The method of discussion and weekly assignments. |
| Assessment methods |
| Daily and monthly tests, also the practical and theoretical tests. |
| C. Thinking Skills  C1.Inference.  C2. Solve the problems.  C3.Learn the basic commands of the program.  C4. |
| Teaching and Learning Methods |
| The lecture/discussion/solve Applied Engineering problems/learning laboratory. |
| Assessment methods |
| Daily and monthly tests, also the practical and theoretical tests. |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. Giving students the skill and knowledge engineering process or programming.  D2. Solving engineering problems in a scientific way by the students.  D3.  D4. |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| A theoretical and practical tests | The lecture, discussion, and laboratory | MATLAB basic commands and environment | Recognize that the general idea of the MATLAB environment | 2 Hours | 1 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | Basic concepts for MATLAB environment | That recognize how to deal with the environment MATLAB | 2 Hours | 2 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | How to deal with various mathematical functions | Identify the basic commands and how to use it | 2 Hours | 3 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | operations of Addition, subtraction ,multiplication and division | Calculations in MATLAB | 2 Hours | 4 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | The sequence of calculation operations | Order of Precedencey | 2 Hours | 5 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | Identify the row and column vectors | How to create Vector | 2 Hours | 6 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | Changing the size of the vector through special orders | Add and delete elements(to /from) Vector | 2 Hours | 7 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | Commands of vectors appending | How to append vector sand presentation of a row or column | 2 Hours | 8 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | Create of matrices in MATLAB | How to create arrays | 2 Hours | 9 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | create of square and rectangular matrices | identify the types of matrices | 2 Hours | 10 |
| A theoretical and practical tests | The lecture, discussion, and laboratory | specifications of special Matrices and deal with ithow | Special matrices in MATLAB | 2 Hours | 11 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Add and delete some rows and columns | Resizeof arrays | 2 Hours | 12 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Someelements of theswitchmatriceswith elementsfrom othermatrices | Manipulation of matrices | 2 Hours | 13 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Addition, subtraction, multiplication and division ofmatrices | Calculationsonarrays | 2 Hours | 14 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Appliedengineeringproblems | Solvingsystems of equationsbymatrices | 2 Hours | 15 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Element by element operation of Addition, subtraction, multiplication and division | Element by element method for Solutioncalculations | 2 Hours | 16 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Addthe elements, deleted, or changed in theMATLABmemory | Operations onMATLABmemory | 2 Hours | 17 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Identify thescriptfile | Scriptfiles | 2 Hours | 18 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | iidentify thespecificcommands | Inputspecial ordersof Scriptfiles | 2 Hours | 19 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Identify thespecificcommands | Output methods andspecial ordersof Scriptfile | 2 Hours | 20 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Plot methods andspecial orders | two-dimensional plot | 2 Hours | 21 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | plotmethods ofmultiplecurvesonthe same figure | Plot of multiplecurvesonthe same figure | 2 Hours | 22 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Plot Methods of multiplecurveson the samewindow | Plot ofdifferentcurveson the samewindow | 2 Hours | 23 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | How to drawpolarcurves andordersits own | Dealingwithpolarcurves | 2 Hours | 24 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | methodsandordersof three-dimensional plot | The basics ofthree-dimensional plot | 2 Hours | 25 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | How tohandle Polynomialfunctionsandordersits own | Polynomialfunctions | 2 Hours | 26 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | operation of Addition, subtraction, multiplication and division | Mathematical operationsofpolynomialfunctions | 2 Hours | 27 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | How to build aprogramin a MATLAB language | Programming inMATLAB | 2 Hours | 28 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | identify of program structure | iteration methods | 2 Hours | 29 |
| Atheoretical and practicaltests | The lecture, discussion, and laboratory | Identify the types of in MATLAB | conditional statements in MATLAB | 2 Hours | 30 |

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| 12. Infrastructure | |
| MATLAB an introduction with applications.  In addition, others references from an internet. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
|  | Special requirements (include for example workshops, periodicals, IT software, websites) |
|  | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
|  | Pre-requisites |
| 10 | Minimum number of students |
| 30 | Maximum number of students |